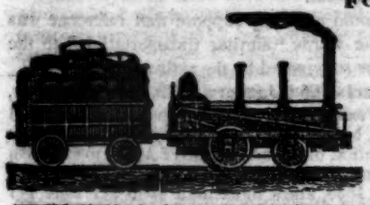
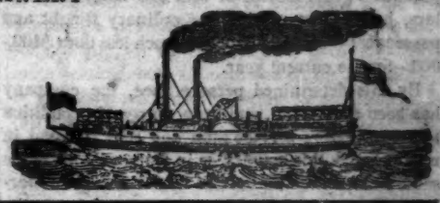
AMERICAN RAILROAD JOURNAL,

AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY AND MINES.





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Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

PUBLISHED AT 105 CHESTNUT ST. PHILADELPHIA.

Saturday, December 4, 1847.

☞ A WORD WITH THE MANY. ☜

In our last we had "a word" with a few of our friends, and we now wish to have a few words with the many who have remembered us in a *business way*, during the year, by which we have been able to sustain the Journal, and make it, in some measure, useful to the cause. For having been *thus* remembered—as well as for the many kind wishes expressed, and favors rendered—we shall endeavor, by devoting our best energies to the Journal, to make returns which will be more useful, and therefore more acceptable, than the expression of the grateful sense which we feel to all, but more especially to those who have stood by us through all the changes and reverses of the past fifteen years.

The Journal *may* be made far more useful than it has been—or is—if those gentlemen of the profession, and those connected with the great interests to which it is mainly devoted, will give to it occasionally the result of their experience, and observation; and *to* them we look, in more ways than one, for aid in sustaining and conducting it. Shall we be disappointed? or shall we find them ready with their pen, in contributing to its columns—and active with their influence in *extending its circulation* among those who may find it useful, and therefore ought to have it? These are the ways in which all can aid in making it more useful to themselves, to the cause, and to us—and therefore we shall not be disappointed in our anticipations.

A WORD TO ALL.

☞ *Missing Numbers.*—We again remind our subscribers that we shall cheerfully supply missing numbers for the current and past volumes—if we have them to spare—on receiving a list. It is much more easy to supply them now than at any future period.

If we have omitted to comply with any of the applications heretofore made for missing numbers, it has arisen from inability at the time—not from indisposition—it may therefore be worth the labor of furnishing a new list, as we have received many loose numbers of back volumes, from which they *may* possibly be supplied.

Wilmington and Raleigh Railroad.

We find a notice of a meeting of the stockholders of this road, in the Wilmington Chronicle of 17th November. The principal business of the meeting was to elect directors and officers, as follows:

Alexander McRae, E. B. Dudley, P. R. Dickinson, Gilbert Potter, James T. Miller and Wm. A. Wright were elected directors, and Gen. Alexander McRae was re-elected president for the ensuing year.

The following resolution was also adopted, viz:

Resolved, That the stockholders of the Wilmington and Raleigh railroad company, in general meeting assembled, do hereby pledge to the Wilmington and Manchester railroad company, a subscription of $100,000 to be paid on the completion of said Wilmington and Manchester railroad, from the proceeds of sale of steamboats and other property, which will at that time become unnecessary for the purposes of this company: *Provided*, That our legislature take such action as to authorize such subscription.

This is well—and we trust that it will accelerate the movements upon the road to Manchester.

Niagara Falls Suspension Bridge.

The suspension bridge companies have decided on the construction of the bridge for the passage of railroad trains. The strength of the supporting cables is to be not less than 6600 tons. The cost is not to exceed $190,000; and the work to be completed by the 1st of May, 1849. Charles Ellet, Jr., Esq., of this city, has been appointed the engineer. The bridge will be in sight both of the cataract and the whirlpool, and span the gorge by an arch of 800 ft.—suspended 230 feet above the surface of the Niagara river.

Schuylkill Coal Trade.

PHILADELPHIA AND READING RAILROAD.—Amount of coal transported during the week ending Thursday, November 25, 1847.

	Tons. cwt.
From Port Carbon	8,287 18
" Pottsville	3,521 08
" Schuylkill Haven	8,691 14
" Port Clinton	2,600 00
Total for week	23,101 00
Previously this year	1,233,466 17
Total	1,256,567 17

HENRY M. WALKER,
Supt. Coal Tr. P. & R. R. R. Co.

SCHUYLKILL NAVIGATION.—Week ending November 25, 1847.

	Tons cwt.
Pottsville and Port Carbon	4,704 09
Schuylkill Haven	1,969 07
Port Clinton	00 00
This week	6,673 16
Previously	221,644 07
Total	228,318 03

Reading Railroad.

How few of those who are benefitted by this noble work, are aware of its importance, and justly appreciate its agency for good. It is known, by many people, in various parts of the country, that there *is* a railroad extending from tide water on the Delaware, to the coal region in Schuylkill county—called the *Philadelphia, Reading and Pottsville railroad*—better known, however, as the "*Reading railroad*," from the circumstance that it was completed, and in operation, to the flourishing borough of *Reading*, for a considerable time before it was extended to the coal region.

This road, it is well known to many, was got up as a competitor, with the Schuylkill Navigation company, for the coal trade; it has therefore had, from its commencement, a powerful rival—and to fight its way into use and into favor against large odds—and not only so, but to contend, for a series of years, with still greater difficulties, in the general depression of business from 1837 to 1843, when it was first opened to the coal trade. A lack of capital, and a loss of credit, during the years 1840, '41 and '42, had the same withering influences upon its operations that are produced to individual enterprize by similar causes; and the wonder to us is—not that the company have done what they have—but that they have succeeded *at all*. There is, however,

one prominent reason that they have succeeded as they have done, under all their difficulties: and that is, in their looking forward to the ultimate certain success of the work, *if* it should be completed, regardless, *almost*, of the present outlay, upon a scale of sufficient magnitude.

With this distinct object in view, the company has gone on, regardless of the constant attacks upon its management, until it is now able to bring down, *this* year, about 1,400,000 tons of coal, which will produce a gross income of *near two millions* of dollars, besides the receipts for ordinary freight and passengers—which will not be much less than $400,000—for the current year.

By this determined perseverance, the company has been able to put, and keep, the road in condition to perform *more* service than *any other* railroad in use, either in this country or in Europe; and, at the same time, by the amount of coal it brings to market it effects a saving to the consumers of that indispensable article, of at least *one* dollar on *each ton* of coal consumed east of the Allegheny mountains—or at least $3,500,000 *per annum! Such* are the effects, and the benefits, of the "Reading railroad," within five years of its extension to the coal region, when it has *only two* tracks, and *seventy-five* locomotives and *five thousand* cars!! Who will estimate its benefits, when its capacity and ability shall have been doubled, as must be the case within the next few years, when it will be required to bring double the amount of coal and other freight that it now does to tide water? There are few, not familiar with the details of such matters, who can form a correct estimate of the extent of its operations.

The cost of its locomotives alone exceeds $550,000! and its cars, over $1,200,000!! and its depots, engine houses and machine shops, cannot fall much short of $1,500,000 more, making an outlay of about *three millions two hundred and fifty thousand dollars*, for depots and machinery alone, after the immense outlay for the road itself!!!.

We were forcibly impressed, when recently on a visit to the coal region, with the correctness of the views of the managers of the road, in thus providing for a large and rapidly increasing business. In rambling about for the purpose of ascertaining what had been done by the two rival companies, at what may be termed the "head of navigation"—but *not* at the head of "*locomotion*"—we came across, at "Port Carbon," an engine house, with an immense turntable, and "stalls" for *twenty-one* locomotives under one roof; and immediately adjoining is to be a shop for temporary repairs of locomotives and cars. This establishment is near the junction of the Schuylkill valley and Mill Creek railroads, at Port Carbon, and therefore in the midst of that portion of the coal region. That part of the road between "Mount Carbon"—the termination of the Reading railroad *proper*—and "Port Carbon," winds along, at the base of the mountain, and above the canal, with a rapid descent from the latter; and the scenery, when enlivened by the music of the locomotive, followed by a long train of cars, descending those heavy grades at a rapid rate, is peculiarly beautiful and interesting.

The branch roads, or rather the distinct roads, diverging from the "Reading," and extending into the different coal regions in different directions, are, in the aggregate, nearly equal in extent to the main line, and they will, in a few years, be much greater.

The principal of these branches is the Minehill and Schuylkill Haven road, 11¼ miles, and its several branches of 15¼ miles, making 27¼ miles terminating at Schuylkill Haven, over which has been transported this year 500,000 tons of coal, mainly by horse power, as locomotives were only introduced upon it in August last. The grades upon this road are such that the empty cars returning are about equal to loaded cars descending.

The Minehill coal sustains a very good reputation with consumers, and the extent of the veins and the facilities for mining it, are said to be at least equal to any part of the Schuylkill region now worked, consequently there are several villages springing rapidly into existence, the principal of which is *Minersville*, which has an industrious and enterprizing population of about twelve hundred, with several stores and mechanics' shops, to supply their wants. The principal, or most extensive shops, are those of the Messrs. De Haven, who commenced, a few years since, in a small blacksmith shop—but have now a foundry, with extensive shops for building steam engines, and other machinery required in the coal region; and they have recently, we are informed, commenced the manufacture of *locomotive* engines.—Thus we see how rapid is the progress, and wide the extension of business in this country, in consequence of the introduction of railroads.

The amount of *tonnage* upon the Reading railroad will be, this year, probably *five hundred thousand tons* greater than on *any other* railroad in the world: and the annual *increase* upon it hereafter will be greater than upon any other road, for the reason that the increased demand for coal, together with the increase of other business attendant upon the coal trade, and the opening of a road from Pottsville through to the valley of the Susquehannah, will ensure to it a business not only unequalled, but *unapproachable* by any other railroad now in use; and the time will come when those who projected, commenced and carried this work through its difficulties, will be considered as public benefactors, notwithstanding the prejudice of those who could not appreciate its usefulness, nor foresee its wonderful influences.

Postoffice Department and the Railroads.

We called the attention of our readers, in a recent number of the Journal, to the controversy between the postoffice department and the Richmond, Fredericksburg and Potomac railroad and steamboat company, in relation to the transportation of the mail between Washington and Richmond. We then gave the resolutions of the company, assigning their reasons for declining to accede to the offer of the department. Since that publication, we have received a copy of the correspondence between the department and the railroad company, commencing March 30, 1847, and continued at intervals up to November 2d.

The correspondence discusses the laws of 1838, 1839 and 1845, in relation to mail transportation on railroads. The postmaster general fixing his rates per mile, of $237 50, for first class routes by section 2d of the act of July, 1838, which says:

"*And be it further enacted*, That each and every railroad within the limits of the United States, which now is, or hereafter may be completed, shall be a post route, and the postmaster general shall cause the mail to be transported thereon, provided he can have it done on reasonable terms, and not paying therefor, in any instance, more than twenty-five per centum over and above which similar *transportation* would cost in post coaches."

In one of his letters, the postmaster general says, in speaking of this section—

"What was meant by the cost of 'similar transportation' in coaches? Did it mean the cost of service on the coach routes over the roads then superseded by railroads, or in the same section of the Union, or in the United States? Was the size of mails and the speed with which they were carried, to be taken into the estimate? The cost of coach service in different sections of the Union varied from $190 per mile per annum to $40, depending on the size of the mails and the speed with which they were taken.

"The department finally settled upon and adopted the highest coach service in the United States, paying 25 per cent. thereon, as the maximum for daily service on the railroads. That service was on the road from Wheeling to Cumberland, over the mountains, costing $190 per mile per annum, and 25 per cent. added to that, made the sum of $237 50 per mile per annum."

We should naturally suppose that reference was had, in the words "similar transportation," to the route to be superseded by the railroad.

In the act of 25th January, 1839, is the following,

"*Be it enacted, etc.*, That the postmaster general shall not, by virtue of the authority vested in him by the 2d section of the act, entitled 'An act to establish certain post routes and discontinue others,' approved 7th July, 1838, allow more than $300 per mile per annum to any railroad company in the United States for the conveyance of one or more daily mails upon their road. Provided, that nothing in this act contained shall be construed so as in any way to remove or impair the limitations upon the power of the postmaster general imposed by that section."

From this section it appears that, *under certain circumstances*, the department is allowed to pay, *not to exceed*, $300 a mile for one or more daily mails upon railroads, from which it will be seen that the amount of $237 50 per mile, fixed by the department, is one of its own decisions, rather than a rate fixed by law.

The P. M. Gen. does not appear to estimate very highly the *advantages* of speed and certainty in the transportation and arrival of the mail, though he says it is better for mail transportation than any other; but places a high value on the concessions of congress to railroad companies, in the remission of duties on railroad iron, as will be seen by the following extract from one of his letters. He says—

"The adjustment of the compensation to railroad companies has always been attended with trouble, owing mainly to the nature of the service, better for mail transportation than any other, and of a character not to admit of much competition. The advance by the government to them of more than six millions of dollars, by the remission of duties on railroad iron, the public convenience, or any other consideration, could prevent them from exacting from the postoffice department such extravagant prices, that congress was compelled to interfere, and in the 2d section of the act of the 7th July, 1838, the postmaster general was prohibited from paying them 'more than 25 per cent. over and above what similar transportation would cost in post coaches.'"

It will hardly be denied, we think, by any intelligent person, that the remission of duties on railroad iron was one of the best investments the government ever made; and the following extract from the report of Mr. Spencer, secretary of war, of December, 1841, shows that it *has been* so estimated by able men connected with the government, whatever may be the opinion of Mr. Johnson. The report says:

"In every point of view in which these works can be considered, their cost is so much actually added to the defensive means of the nation without any expense to the general government, other than the subscriptions it has authorized to a few of them; and it may be affirmed without exaggeration that the aggregate in saving in any future war in which we may be engaged, in the comparatively small amount of military force that will be necessary for defence, and in the cheapness of transportation afforded by railroads and canals now in existence, will be equal to their cost of construction."

If *this* is not good evidence that the government is, and will be, *fully* compensated for all it has done in aid of internal improvements, we will add our own to it, and say that it is our candid opinion that the government would have made a good investment

if it had aided the railroad interest to the amount of *one hundred*, instead of *six*, millions of dollars.

It appears from the letter of the postmaster general, dated June 24th, 1847, that he thinks his predecessor exceeded "the maximum of the law" in some of his contracts—as he says:

"When I came into the department I found the service adjusted in them by my predecessor, and good faith in the department to the contractors required payments to be made upon the terms settled by him—hence payments have been made in the different sections, and will so continue to be made, whether contracts are executed or not, until the close of the contract term. Then it becomes my duty to re-adjust the service, within the maximum of the law.

"The contracts on the road between this and New York will yet continue a year, and the service will be then re-adjusted; until then it will continue as regulated by my predecessor."

We may therefore conclude that there is to be a general cutting down of the rates on other lines as their contracts expire.

Possibly this may be good policy, and it may contribute to the convenience of the people, and the prosperity of the department, but we think very differently.

We hold that the laborer is worthy of his hire, and that increased speed and increased labor in the transportation of the mail, are entitled to an increased compensation.

The service which A. rendered at *four miles an hour*, ought not to be required of B., who has expended a *million* of dollars to attain a speed of sixteen or twenty miles an hour, and certainty, under all circumstances, at the same, or a comparatively small increased, compensation. If *speed* and *certainty* are of value to the business community, and to the government, that community and government ought to be willing to pay a fair price to enterprize for it, and not allow their *agent* to sacrifice the general interest to carry out his arbitrary rules, and to gratify his personal feelings.

Speed, certainty and regularity, are all-important in a business community—and there is no means now in operation by which the business community can be as well served as by railroads—and these railroads have cost immense amounts of capital—therefore those who use them must, of course, contribute a *fair* return to their support; and who so well able as the government—which derives a benefit in its military operations alone, "equal to their cost of construction," to say nothing of its mail service performed at three, *four* and FIVE times the speed, and much greater certainty, at only 25 per cent. increased cost?

We again repeat that compensation for mail service should be in proportion to its *speed* and *certainty*. The department used to pay more for *six*, than for *four* miles an hour, and still more for *ten* than for six miles—so of course should it pay more for twenty miles than for ten—and still more for thirty or thirty-five miles than for twenty, or there will be no inducement for incurring additional expense to increase the speed on the main lines.

This is not a question between the department and the Richmond, Fredericksburg and Potomac railroad and steamboat company—but between the *postoffice* department and the *railroad interest generally*—while the *people*, the *business community*, are to be the sufferers: therefore, it is important that the whole subject should be referred, at an early day, to congress, for its consideration and regulation, that the mail service may be properly performed, the business community faithfully served, and those who, by a large expenditure of capital and constant vigilance, perform the service fairly paid.

Correction of Railroad Table.

South Carolina Railroad and its Branches.

g The *Main road*, from Charleston to Hamburg, has what is termed a *flange* rail—the flange turning down on the inside of the longitudinal wooden rail—weight, that first used, 25½ pounds per yard, but the new rail, of the same form, weighs about 40 lbs.
i A single track, *five* feet gauge.
j One inclined plane.
k Highest grade 25 feet.
m Fare, 5 cents per mile.
n They commute both with families and individuals.

The *Columbia branch* was opened 17 miles in 1840, and the entire line in 1842, and is 67 miles long.
g Has the H rail, 57 lbs. per yard.
i Single track, five feet gauge.
k Highest grade, 39·6 feet.
l Least radius, 2865 feet, except one at the junction.
m Fare, 5 cents per mile.
n Commutation as on the main line.

The *Camden branch* is now under construction, commencing at or near the point, we believe where the Columbia branch crosses the Congaree river, and extends to Camden, 37 miles.
g The ⊓ or bridge rail, weighing 45½ lbs., and the H rail, weighing 51 lbs. per yard, are to be used.
i Single track of 5 feet gauge.
k Highest grade, 24·4 feet.
l Least radius, 2865 feet, except at junction, and the fair and regulations will probably be the same as on the main line and Columbia branch.

The total amount of stock and debts was, in 1845, $5,671,452, for the main line and Columbia branch, making together just 200 miles. The Camden branch is not yet completed, and its cost is not included in the above.

The inclined plain at Aiken is half a mile long, and rises 176 feet.

In 1845 the total receipts were		$558,698
And the ordinary expenses	$281,902	
Interest on funded debt	116,395	
Dividends, 5½ per cent	147,900	
Surplus	12,501	
In 1846 the total receipts were		$589,081
And the ordinary expenses	$309,641	
Interest on funded debt	108,530	
Dividends, 5½ per cent	140,725	
Surplus	30,185	

Iron Trade.

We learn from the Mining Journal of October 23d, that rails were quoted at £8 10s. a £8 15s. average.

A correspondent of the Mining Journal says that, "This has been another dull week in metals, no sales of any consequence having been made. IRON—Welsh bars are a shade lower; a small parcel of Swedes has been sold at £11, ex-ship. COPPER is steady; some of the Chillian ingots have moved off at £90, but 200 tons are still on the market. TIN.—English and foreign very dull of sale; the few orders on hand are withheld in expectation of lower prices. SPELTER is a shade lower than last week; the dealers are sellers at £18, and about 90 tons in second hands were sold on Wednesday at £17 17s.

GLASGOW PIG-IRON TRADE, OCT. 20.—Our pig-iron market is exceedingly dull this week: there is so little disposition shown to buy, that holders have been obliged still further to reduce their prices. The price of mixed Nos. may to-day be quoted at 57s. 6d.—cash.

BIRMINGHAM, THURSDAY.—There is no change to report this week. Stocks are low; the trade is still unaffected by the crisis, and were it not for the high rate of discount, the great premium which cash demands, and the little extra credit which, in some instances, is taken, the pressure would not be felt. The state of things, the *Times* would induce its readers to believe, is owing solely to the demand for iron for railway purposes; but, in fact, the makers of iron, in this district, for railway purposes are comparatively few. The generality of the iron-works are principally engaged in making other sorts of iron, for which there is a good and legitimate demand, both at home and on the continent. It is, therefore, not entirely owing to the demand for railway purposes that the iron-works are flourishing, while others are decaying.—*Birmingham Advertiser.*

ROAD MAKING. OR A MANUAL OF THE PRINCIPLES AND PRACTICE OF ROAD MAKING; *Comprising the Location, Construction and Improvement of Roads,—Common Macadam, Paved, Plank, and Rail-roads.* By WM. GILLESPIE, A. M., C. E., *Professor of Civil Engineering in Union College.*

"The roads of a country are," as the author justly observes, "acurate and certain tests of the degree of its civilization," and it may well be remarked that the location of the early roads of most *new* countries, are as often the result of accident as of design.

The same class of engineers that located some of the most important streets in the city of New York, have continued their labors throughout the country, since the early history of that famous city; and we sometimes find, in our rambles in the interior, in the location of town roads, a verification of a not uncommon expression, that "the farthest way round is the nearest way home." It is true, as a neighborhood, or country, advances in population, wealth and intelligence, the roads are improved by new locations, by filling up hollows, cutting down hills, and by going round, instead of over, the hills. Yet there is, in the general management of our country roads, less of judgment, industry and integrity than in any other of the pursuits of life. It is by *some* considered a *duty*—but more look upon it as a burthen—as just so much time thrown away and lost, while another—and not a small—class consider it a good frolic, as there is usually quite a collection of persons who are under little or no restraint, and thus it is that the "high way tax," paid in labor gives less return to those who pay it, than any other tax paid by the people.

The views of the author upon this subject are sound and practical, and should be read by the people throughout the entire length and breadth of the land—as they are so truthful that good results would surely follow—and that we may do our part in disseminating them, we publish the chapter, upon "THE MANAGEMENT OF TOWN ROADS," entire, and suggest to those editors with whom we exchange, and to others also, to give it an insertion, or, at least, to call attention to it. We also recommend this manual to the perusal of every tax-payer for road making, and to the young men of the country, as they will find useful information in relation to each department of road-making, which will surely be useful to them in after life. It is published by A. S. Barnes & Co., 51 John street, New York, in an octavo volume of 336 pages, with illustrations of the various subjects treated of—and may, probably be had of the principal booksellers throughout the country, at less, we presume, than half its value, though we are not informed as to the retail price.

THE MANAGEMENT OF TOWN ROADS.

"The money levied is more than double of what is necessary for executing in the completest manner the work, which is often executed in a very slovenly manner, and sometimes not executed at all."—ADAM SMITH.

A wise and well-regulated system of managing the repairs of roads, and of obtaining the greatest degree of improvement with the least amount of labor, is as important as their judicious construction. The "*Road tax*" system, of personal service and commutation, though nearly universal among us, is unsound in its principle, unjust in its operation, wasteful in its practice, and unsatisfactory in its results. Borrowed from the "statute-labor" of England, and the "*Corvee*" or "*Prestation en nature*" of France, like them it is a remnant of the times of feudal vassalage, when one of the tenures by which land was held, was the obligation to make the roads passable for the troops of the lord of the manor. The evil consequences of the system will be examined, when we have briefly explained its organization in the state of New York, where it has been rendered as perfect as its nature permits.*

The directing power is vested in "*Commissioners* of Highways," who are chosen in each town at the annual town meeting, and have "the care and superintendence of the highways and bridges therein." Subordinate to them are "*Overseers*," of whom are chosen, at the annual town-meeting, as many as there are road districts in the town. The commissioners have the authority to direct the overseers as to the grade of the road, how it should be shaped and drained, and the like. They may also lay out new roads. The principal duties of the overseers are to summon the persons subject to perform labor on the roads, to see that they actually work, and to collect fines and commutation money. The commissioners are to estimate the cost of improvements necessary on the roads and bridges of the town, and the board of supervisors are to cause the amount to be levied, but within the limit, for any one year, of two hundred and fifty dollars. But, if a legal town meeting so vote, the supervisors may levy "a sum of money, in addition to the sum now allowed by law, not exceeding five hundred dollars in any one year."

"Every person owning or occupying land in the town in which he or she resides, and every male inhabitant above the age of twenty-one years, residing in the town where the assessment is made, shall be assessed to work on the public highways in such town." The lands of non-residents are also to be assessed. The whole number of days' work to be assessed shall be at least three times the number of taxable inhabitants in such town; and may be as many as the commissioners shall think proper.

Persons assessed to work on the highways, upon receiving twenty-four hours' notice from the overseers, must appear either in person, or by able-bodied substitutes; or pay a sum of one dollar for each day's neglect, unless they shall have previously *commuted* at the rate of sixty-two and a half cents per day. A team, cart, wagon, or plough, with a pair of horses or oxen, and a man to manage them, satisfies an assessment of three days.

Such are the principal features of the present system. They are all defective in a greater or less degree.

In the first place, the condition of the roads, which is so important an element of the wealth and comfort of the whole community, should not be allowed to remain at the mercy of the indolence, or false economy, of the various small townships through which the roads pass. In one town, its public spirit, wealth, and pride, may induce it to make a good road; in the adjoining town, a short-sighted policy, looking only to private interest in its narrowest sense, may have led the inhabitants to work upon the roads barely enough to put them into such a condition as will allow a wagon to be slowly drawn over them.

In the next place, the "commissioners" who have the primitive direction of the improvements and repairs, should be liberally compensated for the time and attention which they give to the work. Gratuitous services are seldom efficient; at best they are temporary and local, and dependent on the whims, continued residence, and life of the party; and if the compensation be sufficient, the same evils exist though in a less degree. Skill, labor, and time cannot be obtained and secured without being adequately paid for.

The third defect in the system is the annual election of the commissioners and overseers. When men of suitable ability, knowledge, and experience have been once obtained, they should be permanently continued in office. On the present system of annual rotation, as soon as the overseer has learned something in his year's apprenticeship, his experience is lost, and another takes his place, and begins in his turn to take lessons in repairing roads at the expense of their condition. In other occupations, an apprenticeship of some years is thought necessary before a person is considered as qualified to practice with his own capital; while a road overseer, the moment that he is chosen, is thought fit to direct a work requiring much science, at the expense of the town's capital of time, labor, and money.

In the fourth place, the *fundamental principle* of the road tax is a false one. Its contemporary custom of requiring rents to be paid in kind, has long since been found to be less easy and equitable than money rents. Just so is work paid for by the piece preferable in every respect to compulsory labor by the day. Men are now taken from their peculiar occupations in which they are skilful, and transferred to one of which they know nothing. A good ploughman does not think himself necessarily competent to forge the coulter of his plough, or put together its woodwork. He knows that it is truer economy for him to pay a mechanic for his services. But the laws assume him to be a skilful road-maker—a more difficult art than plough-making—and compel him to act as one; though his clumsiness in repairing his plough would injure only himself, while his road-blunders are injurious to the whole community. Skill in any art is only to be acquired by practical and successful experience, aided by the instructions of those who already possess it. An artisan cannot be extemporized.

Fifthly, labor by the day is always less profitable than that done by the piece, in which each man's skill and industry receive proportionate rewards. Working on the roads is generally made a half holiday by those who assemble at the summons of the overseer. Few of the men or horses do half a day's work, the remainder of their time being lost in idleness, and perhaps half of even the actual working time being wasted by its misdirection.

Lastly, it follows from the preceding, that the commutation system operates very unfairly and severely upon those who commute; for they pay the price of a full day's work, and their tax is therefore doubled.

Such are the principal defects of the present system of managing the labor expended on town roads. But it is much easier to discover and to expose, than to remove them. In the following plan the writer has endeavored to combine the most valuable features of the various European systems, and to adapt them to our peculiar institutions.

In each state, a general legislative act should establish all the details of construction, and determine definitely "What a road ought to be," in accordance with the theory and practice of the best engineers. Surveys should be made of all the leading roads, and plans and profiles of them prepared, so that it might be at once seen in what way their lines could be most efficiently and cheaply improved.

The personal labor and commutation system should be entirely abolished. If the town-meeting would vote a tax in money of *half* the amount now levied in days' work, its expenditure under the supervision to be presently described, would produce a result superior to the present one. When the road is a great thoroughfare, extending far beyond the town, it would be unjust to levy upon it all the expense; and a county tax, or, in extreme cases, a state appropriation, should supply what might be necessary.

In regulating the expenditure of the money raised, the fundamental principle, dictated by the truest and most far-sighted economy, should be *to sacrifice a portion of the resources of the road to ensure the good employment of the remainder.* The justice of this principle needs no argument; its best mode of application is the only difficulty. The first step should be to place the repairs of the roads under the charge of a professional road maker of science and experience. On his skill will depend the condition of the roads, more than on local circumstances or expenditures. His qualifications should be tested by a competent board of examiners, if he should not have received special instructions in the requisite knowledge, such as might well form a peculiar department of education in our Colleges

* A convenient edition of the revised road act, with commentaries, etc., was published at Rochester in 1845.

and Normal schools. As each town by itself could not afford to employ a competent person, a number of them (more or less according to their wealth and the importance of the roads within their bounds) should unite in an association for that purpose.

The engineer thus appointed should choose, in each township, an active, industrious man, of ordinary education, to act as his deputy in making the expenditures in that town, and as foreman of the laborers employed during the season of active labor on the roads. This deputy might be busily and profitably employed during the entire remainder of the year, in constantly passing over in due rotation the whole line of road under his care, and making, himself, the slight repairs which the continual wear and tear of the traffic would render necessary. If taken in time, he himself could perform them; but if left unattended to, *as is usual*, till the season of general repairs, the deterioration would increase in a geometrical ratio, and perhaps cause an accident to a traveller, which would subject the town to damages tenfold the cost of repairs.

The laborers hired by the deputy in each town should be employed by piece-work as far as is possible. This can be carried out to a great extent, when the superintendent is competent to measure accurately the various descriptions of work, and to estimate their comparative difficulty. When the work cannot be properly executed by portions allotted to one man, it may be taken by gangs of four or five, who should form their own associations, make a common bargain, and divide the pay. In work not susceptible of definite calculation as to quantity or quality, and in such only, day labor may be resorted to under a continual and vigilant superintendence.

In such a system as has been here sketched, the money-tax would be found to be not only more equitable than the personal-labor system, but even less burdensome. None of it would be wasted; and those who had skill and strength for road work would receive back, in wages, more than their share of it; those who were skilful in other work might remain at that which was most profitable to them, and pay only their simple share of the road-tax, not double, as when they now commute; and the only losers by the change would be the indolent, who were useless under the old system, but under this, would be obliged to contribute their share; while great gain in every way would ensue to the community at large. The subject urgently demands legislative attention.

The Vacuum Engine.

Having, in the *Mining Journal* of the 18th Sept., given a concise description of the system of pneumatic propulsion, as patented by Messrs. CUNNINGHAM and CARTER, and having heard considerable objections started to the vacuum engines, which form the basis of their plan, we now offer a few remarks thereon, hoping thereby to call the attention of others to their merits much better qualified than ourselves to appreciate and describe them. Our readers will remember that the pneumatic railway consists of a close tube the entire length of the line, without any continuous valve, or opening, of any description, excepting at the side valves, in connection with the vacuum engines, placed at every 300 feet. The engine, itself, consists of merely a cylinder and piston, with double slide valves—the atmosphere thus alternately pressing on either side of the piston, when the communication with the exhaust tube is open, precisely similar to the action of steam in a high-pressure steam-engine. Now, in the high-pressure engine, the induction openings are so small, in proportion to the area of the piston, that the steam is actually wire-drawn, and then cut off at, perhaps, half the stroke, for the purpose of economising fuel, and taking advantage of the property o the expansibility of steam—and thus the power is admitted. but gradually, compared with what it would be, if the induction valves were (say) of four times the area. Now, in these vacuum engines, the element employed being inexhaustible, and supplied by nature without cost, the areas of the openings for the action of the atmosphere on the piston, when the connection with the exhaust tube is open, are made as large as consistently proportionate with the area of the piston itself. The consequence is, that, instead of the atmosphere creeping through a small opening, and acting only by degrees on a large surface, the whole pressure, according to the state of the vacuum, is admitted with a sudden impulse, and thus adds considerably to the calculated power obtained. One great, and we believe the principal, objection made to the system, has been, "that no piston rods and cranks, however strong in proportion to the size of the cylinder, can withstand the sudden shock of a removal from their *vis inertiæ*, or state of rest, to that of rapid motion, by a train going at a rate of 30, 40, or even 60 miles per hour." Now, this would be a very valid objection, were the wheels connected by cogs, or was the machinery in any degree of a complex nature; but, in this case, the rails of the carriages being wedged close between the revolving wheels, with plane peripheries, and these being on the crank shaft, and thus the whole bound firmly together; while on one hand, the instant the connection with the tube is open, the crank is certainly suddenly set in motion with great rapidity—on the other, the train itself acts almost in the capacity of a fly-wheel, and keeps the moving power itself properly regulated: in addition to which, it must be remembered, that there is no enormous weight, such as a train of 90 or 100 tons to set in motion; the only bodies to start from their *vis inertiæ*, being the three horizontal wheels and the piston, and these are *gradually* brought into action by the peculiar form and position of the guide rails. The model, at all events, works well, creates much interest, and gives great satisfaction to numerous scientific men, who witness its performance; yet it would be highly satisfactory to all parties, and at once solve the problem of its capabilities, if about a mile of a railway could be obtained, where the principle could be fully tried. Although the nature of the vacuum engine is, of course, well known; we are satisfied, from its never having been brought into any general use, that its powers and capabilities, as applicable to railway purposes, in all their important bearings, and as a peculiarly powerful auxiliary for safe and certain operations at stations, have yet received but little investigation.

SULPHURIC ETHER,

In connection with steam as a motive power.

A patent has been recently enrolled by Mr. Newton, of Chancery lane, for the employment of the elastic vapor of sulphuric ether as a motive power, not absolutely instead of steam, but in connection with it; the caloric from the steam, after it has done its duty, being sufficient to vaporize the ether. The principles of action are, the passing of the steam, after it has exerted its force upon the piston of a steam engine of the usual construction, not into the condenser, as in condensing engines, or into the atmosphere, as in high pressure engines, but into a certain apparatus, which the inventor terms a 'generator,' or 'vaporizer.' The steam is, immediately upon its introduction into the generator, condensed, by contact with the surface of the apparatus, while the heat absorbed from the steam, during condensation converts into vapor the sulphuric ether, or other highly volatile fluid, which may be used under this patent; the quantity, and, consequently, the power obtained, being in proportion to the amount of caloric in the steam. This vapor is then employed in the propulsion of a piston within a cylinder, similar to a common steam engine, and acting in unison with the steam cylinder—the piston being connected by the usual method of piston rod, connecting rod, and crank to the same shaft to which the steam piston is attached. The elastic vapor, after having exerted its force upon the piston, is conveyed away by proper pipes to a vapor condenser, where it is condensed into fluid by simple contact with cooled metalic surfaces, which are constantly kept at a temperature sufficiently low to effect the condensation of the vapor, immediately on its coming in contact with them. The condensor is kept cool by a stream of cold water, or a current of cold air. The condensed fluid, uncondensed vapor, and what atmospheric air may have entered, is withdrawn out by air pumps, in the usual manner, and deposited in a receiver, provided with a means of expelling and discharging all vapors which may have accumulated, and the lower part of which is connected with the vaporizer, by which it may be supplied with sulphuric ether, or other volatile fluid. The water produced in the vaporizer, from the condensation of the steam, is drawn off by a pump, and discharged into the steam boiler. The mode of making the stuffing boxes air tight for the etheric vapor is by means of water pressure exerting its force through the medium of leather, and acting in opposition to the pressure of the vapor and preventing its escape. The invention can be applied to any description of engine—stationary, marine or locomotive. —*London Mining Journal.*

Gauge, or Width of Track for Railroads.

Report on the Gauge for the St. Lawrence & Atlantic Railroad. By A. C. Merton, Esq., Chief Engineer.

Continued from page 761.

This would not be the result were the engines on that road more powerful. Trains propelled by two or more engines are of necessity delayed at all the wood and water stations, or where cars are to be taken and left on side tracks.

Attaching a number of engines to one train operated most unfavorably, from the unequal manner in which the separate engines act, and the increased liability to accident. It also adds very materially to the cost of transportation.

Mr. J. M'Connell, superintendent of the locomotive department of the Birmingham and Gloucester railway, a narrow gauge advocate, states in his testimony before the gauge commissioners that, "We find from experience that economy of working is very much assisted by taking the trains by one heavy engine, instead of two light ones, that is to say, you save the wages of two men, and I think the expense of repairs is very much reduced, and materials, for instance, oil, tallow, etc., and the consumption of coke in the one engine is not at all equal to the consumption of the two, which only do the same amount of work."

Mr. Wm. Cubitt, a distinguished civil engineer, states in his testimony before the same commissioners, that "Large and powerful engines are more cheaply worked in proportion than smaller ones for the work they do," and adds, in relation to the consumption of coke, etc., "that they are cheaper altogether. With regard to manuel attention, and all that, it takes the same expense to work a small engine as it does a large one, and they can be more economical in coke, with reference to the work they can do. The same quantity of repairs will cover more work."

The first cost of large engines is cheaper in proportion to their power than small ones.

The history of every species of transportation affords evidence of the advantage and economy of carrying large loads. Canals and railroads were introduced on account of the facilities they afforded for moving large loads, thereby lessening the cost of transportation.

The enlargement of the canals of New York, Pennsylvania and Canada, was made for the purpose of increasing the tonnage of vessels, as a means of lessening the cost of transportation.

By enlarging the Erie canal from its original dimensions to 7 feet deep and 70 feet wide, it was estimated that the cost of transportation would be reduced 50 per cent.

It is ascertained from experience that increasing the tonnage of boats on the Delaware and Hudson canal from 31 to 45 tons, reduced the cost of transportation 33 per ct., and the saving this made on the business of the canal for two years reimbursed the cost of its enlargement. By the application of steam to vessels for navigating lakes and rivers and also large canals, a larger class of vessels have been introduced, carrying greatly increased loads, and the effect has been a great reduction in the cost of transportation.

These various modes of transportation alluded to, show the efforts that are making to provide more efficient means for the vastly increasing business of the country, and the advantages which will accrue from increased facilities and ability to move larger loads. If we refer to the history of railroads, it will be observed that from the time at which they were in the most rude state up to the present day, there has been a constant effort to gain an increase of power.

It was not till 1829 that any very great improvement of the locomotive engine was accomplished; and from the opening of the Liverpool and Manchester railroad in 1830 we may date the introduction of locomotive engines generally on railways in preference to any other power. From that day to the present there have been constant changes and improvements going on in the character of engines and the railways upon which they were to operate.

I need scarcely allude to the vast improvements which have been made within a comparatively short space of time, for every person is familiar with the subject.

When it is recollected, however, that in 1829 it was considered a great feat for a locomotive to draw 12 1-2 tons 70 miles at the rate of 14 miles per hour, it certainly must excite feelings of the utmost admiration that in 1846 a locemotive engine on *the broad gauge* was able to draw over 100 tons, a distance of 116 miles at an average velocity of 49 miles per hour, running 10 miles of this distance at the rate of 66 miles per hour, and two miles at a speed of over 69 miles per hour.

These are results that have been obtained in England by the adoption of the broad gauge, which has been in use comparatively but a short time. The narrow gauge having been adopted on the first introduction of railways, improvements have from time to time been made in the engines of this width till finally, as the commissioners state, no further addition to their power can well be made, yet their best performances fall far short of the results above stated. What results may we not expect when the same efforts shall have been made to develope the power of the broad gauge engines?

Large and powerful engines have been objected to on account of the injury which they cause to the road. With heavy engines it is of course necessary to construct a more perfect road and to either increase the weight of the rail or the number of bearing points of the engine. The plan of track adopted for your road contemplates the use of the heaviest class of engines. The rail is of an approved pattern both for strength and durability, and with the continuous support given by the sills it is equal to a rail of 80 or 90 lbs. per yard on cross sleepers as they are usually laid.

It is urged as an objection to the broad gauge that the resistance is greatly increased in passing round curves in consequence of the greater length of the outer rail and the slipping of the wheels in passing over this increased distance.

No difficulty has been experienced in passing around curves of small radius at great velocity even with a gauge of 7 feet, and with a gauge of 5½ feet the width bears so small a proportion to the radius of the curve that there would be no difficulty in this respect, and but a small increase of slipping would result from the excess of width over the narrow gauge were there no provisions to lessen its effects.

Improvements have been made both on locomotive engines and cars which lessen the the resistance on curves, and this undoubtedly will be still further reduced by improvements which are constantly making in railroad machinery.

As cars were formerly constructed, the axles being placed at a greater distance from each other, the friction was greater. In the United States, four wheeled cars have mostly gone out of use, and those having two pairs of wheels at each end of the car have been adopted, the axles of which are placed nearer together, which obviates in a great degree this difficulty.

On your road, as well as other great lines in Canada, the character of the country is such as to require comparatively but a small amount of curvature, and this increased width of track will not be attended by any material loss of power or inconvenience in this respect.

The increased cost of construction is another objection urged against a wider gauge to which much importance has been attached

But on examination, this will be found of comparatively little importance, particularly with the gauge adopted for your road. The width of roadbed is not necessarily increased, although in the consideration of this subject it would be well to provide as much additional width as is given to the tracks.

Most of the narrow gauge roads in the United States are graded in the first instance for a single track, and the width of road bed on embankmets varies, being on different roads from 12 to 15 feet. For double tracks it is generally from 24 to 26 feet.

Your road is being graded for a single track having a surface width of 15 feet with provision for a double track which is 26 feet.

The New York and Erie railroad which has a gauge of 6 feet is graded for a single track with a width of road bed on embankments of 15 feet, while many of the narrow gauge roads have the same width, and no inconvenience is experienced for want of more space in either case.

The London and Birmingham road in England and several narrow gauge roads in the United States have a width on embankments of 26 feet, and this is the width proposed for your road. It therefore appears that on many important roads of that gauge as great a difference exists in the width of road bed as would be the increase necessary for a gauge of 5½ feet.

The width from centre to centre of tracks will be determined by the width of cars from

out to out, and the space between cars when passing each other.

On most roads the space between tracks is 6 feet, and the width of cars has been increased to 9 feet 6 inches, and in some instances to 9 feet 8 inches.

The clear space between cars should not be less than 18 inches, and assuming the width of cars to be 9 feet 6 inches, the distance from centre to centre of tracks will be 11 feet.

Now, if we allow the space for both gauges to be 11 feet, add the width of track, and it gives for the narrow gauge 15 feet 8½ inches and for the 5½ feet track 16 feet 6 inches between outside rails, making a difference due to the latter gauge of 9½ inches.

But allowing 18 inches between cars, with the widest car that would ever be likely to be adopted on 5½ ft. gauge, the increased width of road bed would be only 2 feet. This extra width if strictly applied to all parts of the road would require an increase of 2 feet in the length of culverts, bridge, abutments, etc. This addition is of course to the body of those structures only, the wings, parapet walls, etc., remaining the same in either case.

These additions, were they really made, would on your road amount to but a trifling sum, as there are scarcely any deep rock cuttings, heavy excavations or embankments, and no tunnels. The mechanical structures are generally of a cheap character.

But it is not proposed to add to the dimensions; for the width which is adopted on narrow gauge roads has been found to answer every purpose for an increased width of track. The space left outside of the rails for your road, as now graded, will be nearly 5 feet; and this is deemed sufficient.

The bridges have, when the roadway is on the lower chords, a clear space between the trusses of 15 feet, yet on several narrow gauge roads the space is no less, while some have more than this.

Bridges designed for the road way on the top chords, (of which character are nearly all your more important structures) are not necessarily enlarged, for the trusses may be placed in such a position as will conduce both to economy and strength.

The trusses of this description of bridge in course of construction for your road are placed 12 feet apart for a single track, which, with the thickness of the trusses, gives a top width of from 16 to 18 feet, and when the third truss is added for a double track, it is placed at a distance of 9 feet, the masonry being designed for this in the first instance.

This effects a great saving, and the dimensions need not differ from the same kind of bridge designed for a narrow gauge road.—Adopting the same kind of track which is proposed for your road, the difference in cost would be a mere trifle, or with a cross sleeper road, the increased cost would not exceed £8 per mile.

As it regards the cost of cars, I am able to state from the communications of builders on the subject, that the increased cost will be comparatively small, and will consist mainly in the extra weight of the axles due to the greater width of track.

It is probable that with a 5 1-2 feet track, inside bearings for cars will be considered preferable, in which case the axles will be about three inches shorter than those at present in general use on the narrow gauge.—Car builders state that the cost of cars of this description will be no more for the wide track than for the narrow. It is stated on roads where both inside and outside bearings have been extensively used, that the former are preferred, and that for cars to be constructed hereafter, no other will be used—that, with inside bearings, the cars are easier on the journals and the road, and are in every respect safer, that the journals are less liable to break, the cars move easier around curves and in case of breaking a wheel or axle, the effect is less disastrous to the train and the road. They are objected to on account of the greater trouble of oiling, and liability to get more dirt in them. The former is a comparatively small objection, and the latter, if it exists at all, may doubtlessly be removed.

The amount paid for the last passenger cars ordered for the Erie road, (having a gauge of 6 feet,) which seat 69 passengers, independent of the saloon, was no greater than the amount charged for cars of the same finish, seating the same number of passengers for the narrow gauge roads of the eastern States.

The cost of engines will be no more in proportion to their effective power for a wide gauge than for a narrow; and I was informed a short time since by a large manufacturer that he would make no difference in the cost between engines on the ordinary gauge, and those of 5 1-2 feet track.

The reasons assigned, are the greater conveniences and facilities for arranging economically the working parts for inside connections.

Allowing that the items of increased expense above referred to are incurred on your road, (which as before remarked will not be the case) the aggregate will not amount to 1¼ per cent. on the total cost of the road.

It has been suggested that greater difficulties would be encountered in removing the snow on a wide track than on a narrow.—The increased resistance from this cause, resulting from the difference between the narrow track and the gauge adopted for your road, will, I believe, be found very small and hardly worthy of notice.

It certainly will prove of little consequence compared with the increased power which this greater width gives to the engine. It is a strong argument in favor of a wide gauge that the engines may be constructed of greatly increased power, with a view to overcome more readily this difficulty.

As an evidence that the effect of widening the gauge, and increasing the power of the engine, is to lessen the difficulties of removing the snow, I would refer to the great storm of 1845, which obstructed nearly all the roads in the northern part of the United States.

The Erie road, with a gauge of 6 feet, lost but one trip, while the main lines (narrow gauge) south of New York, were impassable for a number of days.

You are aware, however, from the favorable character of the country, a very large portion of your road will be on embankments elevated five or six feet above the general surface of the ground, which will much facilitate the removal of snow, allowing the winds to sweep more freely over its surface, and thus prevent any great accumulation on the track.

The most prominent objection which can be made to a wide track is, the connection with other roads of a different gauge, and the necessity of transferring freight and passengers from one line to another.

This, under certain circumstances, would evidently be so serious an objection as to overcome all considerations in its favor, and again, under other circumstances, it may be less objectionable than other difficulties.

As it regards the connection of your road with other lines, I know of only one which is now contemplated that would have any bearing on the subject of gauge.

As there are but 15 miles of road in operation in Canada, and only 8 more for which definite arrangements are made for the narrow gauge, the question of connection is not therefore necessarily involved in any difficulty here. From the position of Montreal, the great mass of freight would necessarily be transhipped here.

This at present is unavoidable. In the event of the construction of a bridge across the St. Lawrence, which is a work entirely practicable, and of great merit: and also the construction of a line of roads extending to the upper province, there would still be a transfer of a very large quantity of freight at Montreal, particularly during the season of navigation.

Should a bridge be constructed across the St. Lawrence river, there is no practical difficulty in carrying your road and the St. Johns road over on the same bridge on account of a difference of gauge, and further than this, there is no necessity for a connection.

And until other roads shall have been constructed above the Lachine road, there will be no reason for a connection with this line. The question of gauge, therefore, as far as concerns a connection with any other road in Canada yet constructed, is an open one, and is not embarrassed by existing lines.

There is a branch, however, contemplated by which it is proposed to connect your road with the Passumpsic and Connecticut River railroad, in the State of Vermont, which is intended to form part of a line to Boston.

This may be considered an important branch to your road—the peculiar features of which, and the nature of the business to be expected from it, we will proceed to consider.

The distance from Montreal to Boston, via the most direct lines now in connection with the Passumpsic road, is about 387 miles, and in this distance there are six different corporations. These roads will differ in length from 14 to 128 miles, and each of these, so far as completed, is operated by the company to whom it belongs.

The chief objection to this route for through

traffic as compared with the Portland line, consists in its greater distance to the seaboard and the greater number of separate roads of which the line is composed.

When several roads are operated in connection, forming in the aggregate a line of several hundred miles in length, with lateral lines extending in various directions, it is found extremely difficult so to regulate the distribution of cars as to meet the demands of trade.

Serious difficulties have been encountered in the United States, where many long lines are composed of distinct roads of various lengths, operated by separate corporations.

Each corporation has its local trade which it is highly important should be accommodated; to do this cars must be provided for each station on the main line and its branches;—and at the same time others returning to the several braches of other roads, composing the line, and to latteral roads, which constitute parts of other main lines.

It will be readily perceived that without the most perfect arrangement there will be difficulties in returning the required number of cars to all the stations at the time they may be wanted.

Cars often find their way on to other lines which have no arrangement for an interchange and are missing for months.

There are periods of the year when there is a vastly increased amount of business to be done not only of local but of through traffic, and in many instances the trade preponderating greatly in one direction, the cars are many of them to be returned empty.

Trade varies on different roads, and is subject to changes more or less at various stations on the same line, and it often becomes difficult even for one corporation to systematize its business so as to return cars to the proper stations to meet the immediate demands of its own trade.

But when we combine a large number of corporations having an aggregate length of road of three or four hundred miles, each corporation operating its own road, and each striving to accommodate its own local business, there will unavoidably be much confusion and irregularity.

The agents at the various stations are always desirous of securing the requisite number of cars to dispose of freight that may have been left in their charge, with the urgent solicitation of the owners that it should be forwarded immediately.

And often various descriptions of freight must reach market within a limited time, or the owner and the company with whom it is deposited suffer serious loss.

Under these circumstances, it is not surprizing that every station agent should use every effort to secure a sufficient number of return cars in which to forward the freight left in his charge.

Commencing at the end of the line towards which is the greatest tonnage, the cars on their return are many of them empty or lightly loaded, and these are to be left at various stations, the number to be regulated by the amount and the pressing nature of the business to be done.

The consequence is, that in the anxiety to accommodate all the business, the greater number of cars are left at way stations and branches nearest the terminus or market, while the more remote stations in the interior and the other extremity of the line are unsupplied.

These difficulties are much enhanced by an increased number of roads forming the line, particularly when each road is under distinct management.

There is now in operation an uninterrupted line of railway between Boston and Buffalo. The distance is 535 miles, and there are 10 distinct corporations, each of which operates its own road.

The difficulty of effecting satisfactory arrangements with the several corporations, and the impossibility of controlling the return and proper distribution of cars to the several roads, render necessary a transhipment of freight at Troy.

But even with this division of the line it is found extremely difficult to return the cars westward so as to meet the demands of trade.

A portion of the time during the great press of business last winter, it often occurred that there were no freight cars, or a very limited number, west of Syracuse, about midway of the line between Troy and Buffalo, nearly the whole being detained on the eastern portion of the line.

This result arose in a great degree probably from imperfect arrangements and the want of a full supply of cars; but it shows conclusively that on a long line of roads operated by separate companies, much difficulty will be experienced in the return of cars.

To be Continued.

NEW IRON BRIDGE.

Circumstances having of late, says the Manchester Examiner, directed a great deal of public attention to railway and other bridges, of iron structure, particularly the former, and shown that some of those formerly believed to have been made on a principle which ensured their safety, are really not so, it is important to know that further attempts are being made to construct bridges, which shall, to a much greater extent, combine safety with economy and simplicity. Yesterday we saw a model of one which is said to combine these important properties, and is now exhibiting at the Town-hall warehouse, Cross-street. It is a perfect arch, composed wholly of iron, is 22½ feet long, 8 inches deep, 20 broad, and weighs about 6½ cwts. It combines the arch with the abutment bridge, and they can be used separately or together. All the tension parts are made of wrought-iron, and the compression parts of cast-iron. It is so constructed that the rafter and ring-post principle intersect throughout the whole of the structure; and there are chains at the bottom and centre for keeping the whole in a perfect state of tension, thus equally distributing the weight or pressure. The model now supports a weight of 50½ cwts without having the abutments up; it, consequently depends upon the chains entirely. We are told that, if the weight be taken off the centre of the arch, its curve would still be maintained without the slightest deviation: it possesses another important property—that of compensating itself against heat and cold.

RAILROAD SPEED INDICATOR.

An ingenious contrivance for registering the speed on railway trains, has, within the past week, been deposited in the Royal Polytechnic Institution. The apparatus is intended to prove the rate of travelling by railways, and also the time occupied by each stoppage at the various stations on the line. As a description of this invention might be acceptable to our readers, we give the following account:—The paper which is to receive the register, is a long slip, about one inch broad, and length proportioned to the time the train may be upon the journey. This paper is rolled upon a small cylinder in the first instance, and one end is made fast to a cylinder of larger size, about 8 or 9 in. in diameter; this cylinder is then made to revolve by means of a clock, attached to the apparatus—so that it turns round every half hour; consequently, about three-quarters of an inch of the paper passes any given point every minute; a pencil is now fixed to the upper part of the apparatus, so that it presses on the paper—consequently, as the paper moves round, would make a straight line upon it, were it not that the pencil itself had a lateral motion given to it. This arrangement is so attached to the train, that the pencil moves from one side of the paper to the other every quarter of a mile that the train travels. By this compound motion, a series of diagonal lines are produced upon the paper; the number of lines indicate time. As soon as the train arrives at a station, a straight line merely is produced; and, by observing the length of this line, it indicates how long the train was at the station. The apparatus is the invention of a gentleman named Ricardo.

Items.

Patent Forge and Fan Blast.—Lieut. Col. Dundass, C. B., director of the foundry department; Lieut. Col. Gordon, director of the carriage department,; Lieut. Col. Colquhoun, of the same department; and Major Palliser, of the proof department, assembled at Woolwich dockyard, recently to witness experiments with Mr. Haig's patent forge and fan blast, for producing great heat with manual labor only. The first experiment was made to ascertain its capabilities compared with the common smith's bellows and forge attached to the troops of royal horse artillery and field batteries, when employed in active service; and it was shown that Mr. Haig's plan was not only efficient for all that the bellows and smith's forge could accomplish, but its far greater advantages were shown by a broken axle of a field carriage being brought to an excellent welding heat, and welded in 25 minutes. A similar result could not have been effected with the usual smith's forge.—The next experiment was made in the dial square of the foundry department, two of Mr. Haig's machines being placed adjoining a furnace for fusing iron or cast metal—one

of the machines being worked by a lever handle, and the other by a crank handle.—An excellent casting was soon obtained, and the crank handled machine shown to be the best and easiest worked. An experiment also took place to ascertain the efficiency of the fan blast in making shot red hot, and in eight minutes 12-pounders were made red hot, and ready for firing. The invention is very portable, and suitable for ships and war steamers and will be a great advantage in the field, and at foreign stations, where small parties of artillerymen are attached.—*London Mining Journal.*

Electric Magnetic Telegraph in Austria.—The works for the construction of the electric magnetic telegrrph along the principal line, at Gratz, are almost completed; and as this telegraphic line will also go over the Sommering Pass, where as yet there is no railway road, it will join the Austrian telegraphic station at Gloggnitz—by which means there will be an uninterrupted rapid communication between Gratz, Vienna and Cilly, which in the present state of Italian affairs is of the greatest importance. Some of the peasantry, who came too near the wire, for curiosity, to examine it, received such a severe shock that they fell to the ground. This occasioned such a superstitious fear throughout the whole valley of the Murthul, that all the inhabitants are afraid to come near this wonderful machine; and it is therefore unnecessary to keep a watch upon the works to prevent people from coming too near.—*Ibid.*

Copper Mines of Cuba.—We learn from Madrid, that a company is in course of formation there, with the object of working some copper mines in Cuba. It demands that it should have, during a period of forty years, the privilege of importing into Spain copper ore free of duty, and then, again, the same privilege of exporting abroad. It also demands that a duty should be imposed on all other companies exporting from Cuba. This matter had been referred by the government to the royal council, by whom it was decided with a majority of eight votes to seven, that the privilege of free importation from Cuba should be granted, but for 25 years only.—Senor Burgos, an influential member of the council, has also a considerable interest in the company.—*Ib.*

Improvements in Copper Smelting.—We understand a patent has been obtained for a process of smelting copper ores, whether consisting of the oxides, sulphurets or carbonates on a principle entirely new, and by which pure merchantable copper can be produced at a cost of £5 per ton. We have every reason to believe that we shall be enabled, in our next number, to lay before our readers a part, if not the whole, of the specification, with diagrams, explanatory of the buildings and machinery required in the manipulation. The trials of new methods now in operation at Swansea, Dartmoor, etc., and the success which appears to have followed Mr. Bankart's experiments, render the present invention of great interest to every one at all connected with the copper trade; and we shall endeavor to give the fullest, and most clear, account of the process, that the materials with which we may be furnished will enable us to do.

Institution of Mechanical Engineers.—The next general meeting of the members of the Institution of Mechanical Engineers, is to be held in the Institution-rooms, Temple-buildings, New street, Birmingham, on Wednesday next, the 23th inst., when the President, G. STEPHENSON, Esq., will take the chair.—Papers will be read on the following subjects:—On a safety break for railway carriages—on the practicability of effecting a mechanical communication between the guards and engine drivers of railway trains—on Smith's patent steam indicator, for marine and other boilers—on the fan blast (supplemental paper)—on iron suspension bridges—on a turn-table lathe—on the balancing of railway wheels—on a steam helve—on boring cylinders—on locomotive engines for luggage trains—on a machine for perforating plates for tubular bridges, boilers, etc.—on the application of Jones's patent gas exhauster, as a substitute for the fan blast. We shall give a report of the proceedings in our next Journal.—*Ib.*

Improvements in the Screw Winch.—We have seen a new description of this useful tool, which has just been registered by Messrs. Smith and English, of Princes-street, Leicester-square, which, while it possesses all the powers and capabilities of the old screw handle screw winch, can be applied in a considerably less time, is equally effective, and much more economical. The fixed jaw and handle is the same as usual, only the latter has a serrated rack on its upper surface. The moveable jaw has a corresponding rack in the upper face of the slot, and is furnished at the bottom with a pin, which makes a quarter revolution—having on one portion of its circumference a flat surface, and worked by a trigger. When this flat surface is uppermost, the jaw slides easily; but, on depressing the trigger, the cylindrical face of the pin bites against the handle, and fixes the jaw by the aid of the two racks. It works with the greatest rapidity.—*Ib.*

Telegraphic Communication with France.—We understand that arrangements are in progress for carrying a line of submarine telegraph from Dover to Calias—indeed we are led to expect that, in a few weeks, all the advantages of instant intercommunication between the two countries will be in full operation.

Parsey's Compressed Air Engine.—We understand that an air chamber, on Mr. Parsey's principle, constructed at Birmingham, is now in London, and will be very shortly tested. It is represented to us as an exceedingly strong piece of machinery; and we shall be anxious to learn the results of the trial.

☞ A WORD TO THE FEW. ☜

The current volume of the Journal is nearly completed—four numbers more, and the Index, will complete the *twentieth* volume, and the *fifteenth year* of its publication. There are yet quite a number of accounts for the *current* year—as well as a few for *previous* years—which are not paid. This delay to *each* subscriber cannot benefit the parties—w[illegible] *to* us the delay of *one* or *two hundred* is a *very serio*[us] matter, and may even be the cause of discontinuing the publication entirely.

The difficulty, and expense, of sending an agent to each subscriber—scattered, as they are, all over the Union—is to great to be encountered; and the losses from removal, changes of circumstances and death—when the accounts are suffered to run for several years—are to great for so small a circulation: therefore it has become a matter of *necessity* to call upon those in arrears to remit the amount by mail at once—before the close of this volume, if possible; and I will add that it will save trouble and postage, and be only a fair return for past delays, to enclose, at the same time, the next year's subscription. By doing so, they will materially promote our convenience, and the prosperity of the Journal.

I shall hereafter, while the Journal is under my charge, give to it my *undivided* attention, and hope to be able to make it deserving of a *prompt* and *liberal* support, and I shall look to every friend of the cause for aid in sustaining it.

D. K. MINOR, *Editor.*

NOTICE TO CONTRACTORS.—GREAT WESTERN RAILWAY, CANADA WEST. Sealed proposals will be received until the 1st day of next October, at the Office of the Great Western Railway Company, for the Grading and Masonry of the Western Division, extending from London to Windsor, a distance of one hundred and ten miles; also for the branch to Port Sarnia, forty-five miles in length.

Plans and Specifications of the work can be examined at the Engineers' Office, in Hamilton and London, on and after the 15th of September.

C. B. STUART, Engineer.

Hamilton, July 30, 1847. 2m32

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

WELDED WROUGHT IRON TUBES

From 4 inches to ¼ in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T's, L's, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.

Manufactured and for sale by

MORRIS, TASKER & MORRIS.

Warehouse S. E. Corner of Third & Walnut Streets,

PHILADELPHIA.

RAILROAD IRON.—THE NEW JERSEY Iron Company, Boonton, N. J., are now making Railroad Bars, and are prepared to execute orders for any required pattern. Apply to

FULLER & BROWN, Agents,

No. 139 Greenwich, corner of Cedar street.

June 1, 1847. 10tf

CHILLED RAILROAD WHEELS.—THE undersigned are now prepared to manufacture their Improved Corrugated Car Wheels, or Wheels with any form of Spokes or Disks, by a new process which prevents all strain on the metal, such as is is produced in all other chilled wheels, by the manner of casting and cooling. By this new method of manufacture, the hubs of all kinds of wheels may be made whole—that is, without dividing them into sections—thus rendering the expense of banding unnecessary; and the wheels subjected to this process will be much stronger than those of the same size and weight, when made in the ordinary way.

A. WHITNEY & SON,

Willow St. below 13th,

Nov. 10, 1847. [tf.] Philadelphia, Penna.

DAY, CROSKY & ROSS,

COMMISSION MERCHANTS,

57 THREADNEEDLE STREET, LONDON.

13 ORCHARD PLACE, SOUTHAMPTON.

SHIPPING & COMMISSION AGENTS

FOR

PASSENGERS, SPECIE, GOODS, PARCELS, etc.

☞ To all parts of the United States, North and South America, West Indies, India, [overland or otherwise,] Constantinople, Egypt, the Mediterranean, the Peninsula, and all parts of France—via Havre.

Agents at Cowes for the Ocean Steam Navigation of New York.

☞ Persons wishing to transact business with Messrs. D. C. & R., will please apply to the subscriber, who will make cash advances on consignments to their address.

July 31—3m ROBERT GRACIE.

LOCOMOTIVE AND CAR AXLES. The Subscribers are now prepared to receive orders for the well known and approved *Reading Locomotive and Car Axles*—drawn to any required pattern from *Bloom Iron only*. Address

SAM'L KIMBER & CO.,

Willow Street Wharf,

4u Phiiadelphia, Pa.

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 105 Chestnut street.

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, *Agent.*

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

*** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufcturing so as to keep pace with the daily increasing demand.

ja15

MANUFACTURE OF PATENT WIRE Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by

JOHN A. ROEBLING, *Civil Engineer,*

Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railrord, has now run 4 seasons, and is still in good condition. 92v11y

PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, *Agent.*

Albany Iron and Nail Works, Troy, N. Y.

The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co. Boston. ja45

MACHINE WORKS OF ROGERS, Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed beinglarge, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery

of all descriptions and of the most improved patterns, style and workmanship.

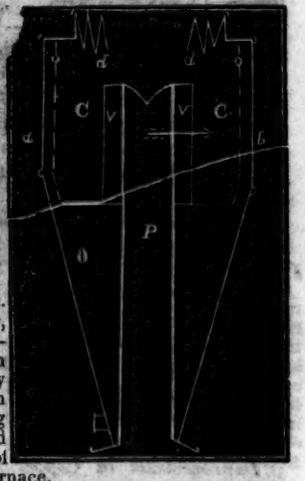
Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,

a45 Paterson, N. J., or 60 Wall street, N. York.

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved Spark Arrester recently patented by the undersigned.



Our improved Spark Arresters have been extensively used during the last year on both passenger & freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

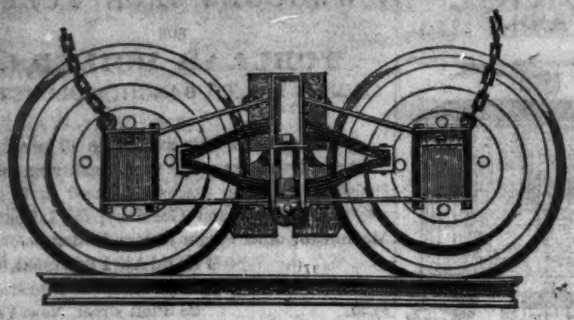
R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendant Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendant Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. *Philadelphia, Pa., April* 6, 1844.

*** The letters in the figures refer to the article given in the *Journal* of June, 1844. ja45

'S EQALIZING RAILWAY TRUCK.—THE SUBSCRI- ber having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East river, (of which firm the subscriber was late a partner) under the immediat supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846. W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the bes and most economical truck now in use.

[Signed,] WILLIAM ROE, Sup't of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845. [Signed,] G. A. NICOLL,
Sup,t Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use. [Signed,] T. L. SMITH,

Jersey City, November 4, 1845. N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot, Jamaica November 12, 1845. } [Signed,] JOHN LEACH, Sup't Motive Power

1y19

ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.— for sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,
75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.				HEMPEN ROPES.			CHAINS.		STRENGTH
Wire gauge number.	Circumference of rope.	Weight per fathom.		Circumference of rope.	Weight per fathom.		Weight per fathom.	Diameter of iron.	Tons.
	INCH.	LBS.	OZ.	INCH.	LBS.	OZ.	LBS.	INCH.	
11	4¼	13	5	10	24	–	50	15-16	20
13	3½	8	3	8½	16	–	27	11-16	13½
14	3¼	6	11	7½	12	8	17	9-16	10½
15	2¾	5	2	6½	9	4	13½	1-2	7½
16	2¼	4	3	6	8	8	10½	7-16	7

N.B. The working load, with a perpendicular lift, may be taken at 6 *cwt. for every lb. weight per fathom, so that a rope weighing* 5 *lbs. per fathom would safely lift* 3360 *lbs., and so on in proportion.* 1y24

RAILROAD SCALES.—THE ATTEN- tion of Railroad Companies is particularly requested to Ellicotts' Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.
Factory, 9th street, near Coates, cor. Melon st.
Office, No. 3 North 5th street,
1y25 Philadelphia, Pa.

NICOLL'S PATENT SAFETY SWITCH for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee G. A. NICOLLS,
ja15 *Reading, Pa.*

THE SUBSCRIBERS, AGENTS FOR the sale of

Codorus,
Glendon,
Spring Mill and
Valley,
} Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

SAM'L. KIMBER, & CO.,
59 North Wharves,
Jan. 14, 1846. [1y4] *Philadelphia, Pa.*

TO RAILROAD COMPANIES AND MAN ufacturers of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside. THOMAS & EDMUND GEORGE,
ja15 N. E. cor. 12th and Market sts., Philad., Pa.

TO LOCOMOTIVE AND MARINE EN- gine Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

MORRIS TASKER & MORRIS,
Warehouse S. E. corner 3d and Walnut Sts., Philadelphia. 1tf

THE SUBSCRIBER IS PREPARED TO execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER 17 Burling Slip.
1y10 New York.

CONCORD RAILROAD.—PASSENGER Trains in connection with the Lowell & Nashua Railroads, run daily between Concord and Boston, Sundays excepted, as follows, viz:

Leave Concord at 5 40 and 11 5 a.m. and 3 15 p.m.
Leave Boston at 7 and 11 a.m. and 5 p.m.

This road runs by Nashua and Manchester to Concord N. H., where it connects with the Northern railroad, extending from Concord to the mouth of White river in Vermont, 18 miles of which road, to Franklin, is now opened, and the remainder is rapidly completing.

It is the direct route to Central and northern New Hampshire, and to Montpelier, Burlington, and other towns in northern Vermont, and has a greater proportion of railroad conveyance in those directions than any other line.

It is also the British Steam Mail Line, and the nearest route from Boston to the Canadas. Numerous stages connect with all parts of the road.

For further information, apply at B. P. Cheney & Co.'s Express office, No. 8 Court St., and Averill & Dean, No. 15 Elm St.

All passengers' baggage should be properly marked, and when valued at more than $50, notice must be given, and extra charges paid, or no loss beyond such amount will be allowed.

26tf N. G. UPHAM, Supt.

NORWICH AND WORCESTER RAILRoad. Summer Arrangement. Change of Hours. Commencing on Wednesday, April 21, 1847.

Accommodation Trains, daily, (except Sunday.) Leave Norwich, at 6 a. m., and 4½ p. m. Leave Worcester, at 8½ a. m., and 4½ p. m.

☞ The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 2½ p.m. train from Boston.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the stamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 6½ p.m., daily, except Sunday, stopping at Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Leave Norwich at 7, and Worcester at 6 30 a. m. Special contracts will be made for cargoes, or large quanties of freight, on application to the superintendent.

☞ *Fares are Less when paid for Tickets than when paid in the Cars.* ☜

32 1y J W. STOWELL, Sup't

LONG ISLAND RAILROAD COMPANY. Summer Arrangement. On and after Monday May 1st, trains will run as follows, except Sundays:

Leave—Brooklyn at 9 1-2 a.m. for Farmingdale, 1 1-2 p.m. for Greenport, at 4 p.m. for Farmingdale.

Leave Farmingdale at 7 a.m for Brooklyn, 12 m. do., at 3 1-4 do. do.

Leave Greenport at 8 1-2 a.m. for Brooklyn.

Leave Jamaica at 8 a.m. for Brooklyn, at 1 p.m. do., at 4½ p.m do.

On Saturdays, a train will leave Brooklyn for Yaphank, at 4 p.m. Leave Yaphank, on Mondays for Brooklyn at 5 1-2 a.m.

On and after May 15th, and until September 1st, 1847, a train will leave Jamaica at 7 a.m. for Brooklyn—leave Brooklyn at 6 p.m. for Jamaica, and will land and receive passengers at any place between Brooklyn and Jamaica.

On Sundays—leave Brooklyn at 8 1-2 a.m. for Farmingdale; leave Farmingdale at 4 p. m. for Brooklyn.

Freight Trains—leave Brooklyn at 10 a.m. for Greenport; leave Greenport at 12 m. for Brooklyn.

Baggage crates will be in readiness at the foot of Whitehall street, to receive baggage for the several trains, 30 minutes before the hour of starting from the Brooklyn side.

The steamer "Statesman," Captain Nash, leaves Greenport for Sag Harbor on the arrival of the Accommodation train from Brooklyn.

5tf DAVID S. IVES, Sup't.

BOSTON AND MAINE RAILROAD. Upper Route, to Portland and the East.

WINTER ARRANGEMENT, Commencing October 4, 1847.

PORTLAND TRAINS.

Leave Boston at 7 A.M. and 2½ P.M.
Leave Portland at 7½ A.M. and 3 P.M.

GREAT FALLS TRAIN.

Leave Boston at 3½ P.M.
Leave Great Falls at 6½ A.M.

LAWRENCE TRAINS.

Leave Boston at 7, 11½ a.m., 2½, 3½, 5½ p.m.
Leave Lawrence at 7, 8½, 11 a.m., 3½, 6½ p.m.

HAVERHILL TRAINS.

Leave Boston at 11½ A.M. and 5½ P.M.
Leave Haverhill at 7 A.M. and 3½ P.M.

READING TRAINS.

Leave Boston at 8½ A.M. and 6½ P.M.
Leave Reading at 6 50 A.M. and 1½ P.M.

MEDFORD BRANCH TRAINS.

Leave Boston at 7½, a.m., 12 m., 2½, 4½, 6 p.m.
Leave Medford at 7, 8½, a.m., 1½, 3½, 5 p.m.

The Depot in Boston is on Haymarket Square.

1y31 CHAS. MINOT, *Sup't.*

BOSTON AND PROVIDENCE RAILroad. Passenger Notice. Summer Arrangement. On and after Monday, April 5, 1847, the Passenger Trains will run as follows:

Steamboat train via Stonington—Leaves Boston every day, except Sunday, at 5 o'clock p.m.

Accommodation Trains—leave Boston at 7 and 10½ a.m. and 4 p.m., and Providence at 7½ and 10½ a.m. and 4½ p.m.

Dedham trains, leave Boston at 8 a.m., 12½, 3½, 6½ and 9 p.m., Leave Dedham at 7 and 9½ a.m. and 2½, 5½ and 8 p.m.

Stoughton trains, leave Boston at 11½ a.m. and 5½ p.m. Leave Stoughton at 7 10 a.m. and 3½ p.m.

All baggage at the risk of the owners thereof.

25tf W. RAYMOND LEE, *Sup't.*

NEW YORK & HARLEM RAILROAD CO.—Summer Arrangement.—On and after Tuesday, June 1st, 1847, the cars will run as follows, until further notice. Up trains will leave the City Hall for—

Yorkville, Harlem and Morrisana at 6, 8 and 11 a.m., 2, 2 30, 5 and 7 p.m.

For Morrisiana, Fordham, Williams' Bridge, Tuckahoe, Hart's Corner and White Plains, 7 and 10 a.m., 4 and 5 30 p.m.

For White Plains, Pleasantville, Newcastle, Mechanicsville and Croton Falls, 7 a.m. and 4 p.m.—*Freight train at 1 p.m.*

Returning to New York, will leave—

Morrisiana and Harlem, 7, 8 20 and 9 a.m., 1, 3, 4 30, 6, 6 28 and 8 p.m.

Fordham, 8 08 and 9 15 a.m., 1 20 and 6 15 p.m.

Williams Bridge, 8 and 9 08 a.m., 1 10, 6 08 p.m.

Tuckahoe, 7 38 and 8 25 a.m., 12 55 and 5 52 p.m.

White Plains, 7 10 and 8 35 a.m., 12 50, 5 35 p.m.

Pleasantville, 8 15 a.m. and 5 15 p.m.

Newcastle, 8 a.m. and 5 p.m.

Mechanicsville, 7 48 a.m. and 4. 48 p.m.

Croton Falls, 7 30 a.m. and 4 30 p.m. Freight train at 10 a.m.

Freight train will leave 32d street for Croton Falls and intermediate places, 4 a.m and City Hall 1 p.m.

Returning, leave Croton Falls 10 a.m. and 9½ p.m.

ON SUNDAYS, the trains will run as follows:

Leave City Hall for Croton Falls, 7 a.m., 4 p.m.

Croton Falls for City Hall, 7 30 a.m., 4 30 p.m.

Leave City Hall for White Plains and intermediate places, 7 and 10 a.m. 4 and 5 30 p.m.

White Plains for City Hall, 7 10 and 8 35 a.m., 12 30 and 5 35 p.m.

Extra trains will be run to Harlem, Fordham and Williams Bridge on Sunday, when the weather is fine.

The trains to and from Croton Falls will not stop on N. York island, except at Broome st. and 32d st.

A car will preceed each train 10 minutes to take up passengers in the city.

Fare from New York to Croton Falls and Somers $1, to Mechanicsville 87½c., to Newcastle 75c., to Pleasantville 62½c. to White Plains 50c. 25tf

WESTERN RAILROAD.—ON AND AFter Monday, April 5, 1847, the passenger trains will leave daily, Sundays excepted, as follows:

Boston at 8 a. m. and 4 p. m. for Albany.

Albany at 7 1-4 a. m. and 5 p. m. for Boston.

Springfield at 8 1-2 a. m. and 1 p. m. for Albany

Springfield at 8 1-2 a. m. and 1 1-2 and 3 p. m. (or on arrival of the train from New York) for Boston.

Day line to New York, via Springfield.—The steamboat train leaves Boston at 6 a. m., and arrives in New York at 7 p. m., by the steamboats Traveller, New York, or Champion. Returning, leaves New York at 6 1-4 a. m., and arrives in Boston at 7 p. m.

Night line to New York.—Leaves Boston at 4 p. m., and arrives in New York at 5 a. m.

Albany and Troy.—Leave Boston at 8 a. m., Springfield at 1 p. m., and arrive in Albany at 6 p. m.; or, leave Boston at 4 p.m., Springfield next morning at 8 1-2, and arrive in Albany at 1 1-2 p.m.

The Troy trains connect at Greenbush.

The trains for Buffalo leave at 7½ a.m. and 7 p.m.

For Northampton, Greenfield, etc.—The trains of the Connecticut River Railroad leave Springfield at 8 1-4 a.m., 1 and 3 p.m., and passengers proceed directly on to Brattleboro', Windsor, Bellows Falls, Walpole, Hanover, Haverhill, etc.

For Hartford.—The trains leave Springfield on the arrival of the trains from Boston.

The trains of Pittsfield and North Adams Railroad leave Pittsfield on the arrival of the trains from Boston.

N. B.—No responsibility assumed for any baggage by the passenger trains, except for wearing apparel not exceeding the value of fifty dollars, unless by special agreement.

JAMES BARNES, Sup't and Eng'r.
C. A. SEAD, Agent, 27 State street, Boston.

NEW YORK AND ERIE RAILROAD LINE SUMMER ARRANGEMENT. For passengers, twice each way daily, (except Sunday,) leave New York from the foot of Duane St. at 7 o'clock, A. M. and at 4 o'clock, P. M. by steamboat, for Piermont, thence by cars to Ramapo, Monroe, Chester, Goshen, Middletown, Otisville, and the intermediate stations.

The return trains for New York will leave Otisville at 6 30, A. M. and 4 15, P. M.; Middletown at 7 A. M. and 4 40, P. M.; Goshen at 7 22, A. M. and 5 3, P. M.; Chester at 7 35, A. M. and 5 18, P. M.

Fare between New York and Otisville, $1 50; way-fare in proportion.

For Milk—Leave Otisville at 5½ o'clock, morning and evening.

For Freight—The barges "Samuel Marsh and "Henry Suydam, Jr." will leave New York (from the foot of Duane St.) at 5 o'clock, P. M. daily (except Sundays.)

No freight will be received in New York after 5 o'clock, P. M.

Freight for New York will be taken by the trains leaving Otisville at 10½ o'clock, A. M.; Middletown at 11½, A. M.; Goshen at 12½, P. M.; Chester at 1 o'clock, P. M., etc., etc.

For farther particulars, apply to J. F. CLARKSON, Agent, corner of Duane and West Sts., New York, or to S. S. POST, Superintendent Transportation, Piermont.

24tf H. C. SEYMOUR, Sup't.

GREAT SOUTHERN MAIL LINE! VIA Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4½ P.M., Philadelphia at 10 P.M., and Baltimore at 6½ A.M., proceed without delay at any point, by this line, reaching Richmond in *eleven*, Petersburg in *thirteen and a half hours*, and Charleston, S. C., in *two days* from Baltimore.

Fare from Baltimore to Charleston.....$21 00
" " " Richmond..... 6 60

For Tickets, or further information, apply at the *Southern Ticket Office*, adjoining the *Washington Railroad Office*, Pratt street, Baltimore, to

1y14 STOCTON & FALLS, Agents.

BALTIMORE AND OHIO RAILROAD. MAIN STEM. The Train carrying the Great Western Mail leaves Baltimore every morning at 7½ and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with—the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry — with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points $7, and 4 cents per mile for less distances. Fare through to Wheeling $11 and time about 36 hours, to Pittsburgh $10, and time about 32 hours. Through tickets from Philadelphia to Wheeling $13, to Pittsburgh $12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5½ P. M from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare $1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13y1

LITTLE MIAMI RAILROAD COMPANY. Fall and Winter Arrangement, 1847. On and after Monday, September 20th, until further notice, a Passenger train will run as follows:

Leave Cincinnati daily at 9 A. M., for Milford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Yellow Springs, and Springfield. Returning, will leave Springfield at 4½ a.m. Upward train arrives at Springfield at 2½ p.m. Downward train arrives at Cincinnati at 10½ a.m.

Freight trains will run each way daily.

Messrs. Neil, Moore & Co. are running the following stage lines in connection with the road:

A daily line from Xenia to Columbus and Wheeling, carrying the great Eastern mail.

Daily lines from Springfield to Columbus, Zanesville and Wheeling. Also to Urbana and Bellefontaine.

A line of Hacks runs daily in connection with the train between Deerfield and Lebanon.

Passengers leaving for New York and Boston, arrive at Sandusky city via Urbana, Bellefontaine & the Mad River and Lake Erie railroad, in 27 hours, including several hours' sleep at Bellefontaine. To the same point via Columbus, Delaware, Mansfield and the Mansfield and Sandusky city railroad, is 32 hours. Distance from Cincinnati to Springfield by railroad.....84 miles.
From Springfield to Bellefontaine by stage, over a good Summer road.....32 "
From Bellefontaine to Sandusky city by railroad.....102 "

FARE—From Cincinnati to Lebanon....$1 00
" " " Xenia..... 1 50
" " " Springfield.. 2 00
" " " Columbus... 4 00
" " " Sundusky city 7 00

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every $500 in value over that amount.

47tf W. H. CLEMENT, *Sup't.*

BALTIMORE AND SUSQUEHANNA Railroad.—Reduction of Fare. Morning and Afternoon Trains between Baltimore and York.—The Passenger trains run daily, except Sunday, as follows:

Leaves Baltimore at.....9 a.m. and 3½ p.m.
Arrives at.....9 a.m. and 6½ p.m.
Leaves York at.....5 a.m. and 3 p.m.
Arrives at.....12½ p.m. and 8 p.m.
Leaves York for Columbia at..1½ p.m. and 8 a.m.
Leaves Columbia for York at..8 a.m. and 2 p.m.

FARE.

Fare to York.....$1 50
" Wrightsville..... 2 00
" Columbia..... 2 12½
Way points in proportion.

PITTSBURG, GETTYSBURG AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg.....$9
Or via Lancaster by railroad..... 10
Through tickets to Harrisburg or Gettysburg.. 3
In connection with the afternoon train at 3½ o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at.....5½ p.m.
Returning, leaves Owing's Mills at.....7 a.m.

D. C. H. BORDLEY, *Sup't.*
31 1y Ticket Office, 63 North st.

LEXINGTON AND OHIO RAILROAD. Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m. Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare $1·25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above. 35ly

CENTRAL AND MACON AND WESTERN Railroads, Ga.—These Roads with the Western and Atlantic Railroad of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

Miles.
Savannah to Macon—Central Railroad 190
Macon to Atlanta—Macon and Western.....101
Atlanta to Oothcaloga—Western and Atlaniic.. 80

Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

	To Atlanta.	To Oothcaloga.
On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings	$0 50	$0 75
Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones	0 50	0 62½
On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot	0 20	0 26
Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot	0 20 pr. 100lbs.	35
Crockery, per cubic foot	0 15 "	" 35
Molasses and Oil, per hhd., (smaller casks in proportion).	9 00	12 50
Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each	1 25	1 50
Ploughs, (small,) and Wheelbarrows	0 80	1 05
Salt, per Liverpool Sack	0 70	0 95

Passage—Savannah to Atlanta, $10; Children, under 12 years of age, half price, Savannah to Macon, $7.

☞ Goods consigned to the subscriber will be forwarded free of Commissions.

☞ Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, *Forwarding Agent, C. R. R.*
Savannah, Aug. 15th, 1846. 1y34

CENTRAL RAILROAD—FROM SAVANNAH to Macon. Distance 190 miles. This Road is open for the transportation of Passengers and Freight. Rates of Passage, $8 00. Freight—

On weight goods generally... 50 cts. per hundred.
On measurement goods..... 13 cts. per cubic ft.
On brls. wet (except molasses and oil).....$1 50 per barrel.
On brls. dry (except lime)... 80 cts. per barrel.
On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred.
On hhds. and pipes of liquor, not over 120 gallons.....$5 00 per hhd.
On molasses and oil.....$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE,
y40 Gen'l. Sup't. Transportation.

SOUTH CAROLINA RAILROAD.—A Passenger Train runs daily from Charleston, on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tuscumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily.....$26 50
Fare through from Charleston to Huntsville, Decatur and Tuscumbia..... 22 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

r25 JOHN KING, Jr, *Agent.*

THE WESTERN AND ATLANTIC Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tuscumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,
Chief Engineer.
Atlanta, Georgia, April 16th, 1846. 1y

NEW YORK AND PHILADELPHIA RAILroad line—direct. Via Newark, New Brunswick, Princeton, Trenton, and Bristol. (Through in six hours.) Leaving New York daily from the foot of Liberty street.

Morning line.....9 o'clock a.m.
Mail pilot line.....4½ " p.m.

The lines proceed direct to Bristol without change of cars, and thence by the new steamer, "John Stevens," to Philadelphia.

FARE BETWEEN NEW YORK & PHILA.

First class cars.....$4 00
Second class cars..... 3 00

Passengers will procure their *Tickets* at the office foot of Liberty st., where a commodious steamboat will be in readiness with Baggage-crates on board.

Fifty pounds of baggage will be allowed to each passenger in this line, and passengers are expressly prohibited from taking anything as baggage but their wearing apparel, which will be at the risk of the owner.

Philadelphia Baggage-crates are conveyed from city to city, without being opened by the way. Each train is provided with a car, in which are apartments and dressing rooms expressly for ladies' use.

Returning, the lines leave Philadelphia from the foot of Walnut st. at 9 a.m, and 4 1-2 p.m.

The lines for Baltimore leave Philadelphia daily except Sundays, at 8 a.m., 3½ and 10 p.m., and Sundays only at 10 p.m.—being a continuation of the line from New York. 25tf

PHILADELPHIA AND READING RAILROAD.—Passenger Train Arrangement for 1847.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A. M.

The Train from Philadelphia arrives at Reading at 12 18 M.

The Train from Pottsville arrives at Reading at 10 43 A. M.

	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville,	92	$3 50 and	$3 00
" " Reading,	58	2 25 and	1 90
" Pottsville "	34	1 40 and	1 20

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets. 8tf

PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD.—1847.

Summer Arrangement.

Philadelphia for Baltimore...8 a.m. and 10 p.m.
Baltimore for Philadelphia...9 a.m. and 8 p.m.
Connecting with Mail Lines North, South & West.

On Sundays, only the 10 P. M. Lines run.

The Boat Lines, via Newcastle & Frenchtown R.R.
Leave Philadelphia at 3½ p.m. } No line on Sun-
Leave Baltimore at 3 p.m. } day.

Accommodation Trains between Philadelphia & Wilmington.—Philadelphia to Wilmington, 8 a.m., *mail*, 12½ p.m., 4 p.m., 7 p.m., 10 p.m. *mail*. Wilmington to Philadelphia, 7 a.m., 1 p.m., *mail*, 4½ p. m., 7 p.m., 12½ a.m., *night mail*.

J. R. TRIMBLE,
2tf *Engineer and General Superintendent.*

GEORGIA RAILROAD. FROM AUGUSTA to ATLANTA—171 MILES.

AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO DALTON, 100 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 408 miles in length, from Charleston to Dalton (Cross Plains) in Murray county, Ga.—32 miles from Chattanooga, Tenn.

RATES OF FREIGHT.	Between Augusta and Dalton. 271 miles.	Between Charleston, and Dalton. 408 miles.
1st class. Boxes of Hats, Bonnets, and Furnature, per cubic foot	$0 18	$0 28
2d class. Boxes and Bales of Dry Goods, Sadlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	1 00	1 50
3d class. Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 60	0 85
4th class. Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc	0 40	0 65
Cotton, per 100 lbs	0 45	0 7
Molasses, per hogshead	8 50	13 50
" " barrel	2 50	4 25
Salt per bushel	0 18	
Salt per Liverpool sack	0 65	
Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows	0 75	1 50

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight payable at Dalton.

F. C. ARMS,
Sup't. of Transportation.
Augusta, Ga., *July* 15, 1847. 44*1y

RATES OF FREIGHT

On CHANDLER'S Through Transportation Line, between Charleston, S. C., or Savannah, Ga., and Decatur, Ala., and Knoxville, Tenn., and all intermediate points on the Tennessee River, viz:

Between Macon	and Decatur and immediate points.	0 22½	1 54	1 05	0 81 0 66
	and Knoxville & intermediate points	0 22½	1 54	1 10	0 76 0 61
	and Chattanooga.				0 61
Between Augusta	and Decatur and intermediate points.	$0 24	1 70	1 15	0 85 0 90
	and Knoxville & intermediate points.	$0 24	1 70	1 20	0 80
	and Chattanooga				0 65
Between Charleston or Savannah	and Decatur and intermediate points.	$0 32	2 20	1 35	1 05 1 10
	and Knoxville & intermediate points.	$0 32	2 20	1 40	1 00
	and Chattanooga.				0 85

1st class.—Boxes of Hats, Bonnets and Furniture per foot.
2d class.—Boxes and Bales of Dry Goods, Shoes, Saddlery, Glass, Paints, Oils, (in cans) Drugs, Confectionaries, Shovels, Spades, Scythes, Smiths' Bellows, Baskets, Tubs, Stifters, Brooms and other light articles, per 100 lbs.
3d class.—Molasses, Sugar, Coffee, Liquor, Bagging, Rope, Cheese, Tobacco, Leather, Feathers, Hides, Wool, Copper, Tin, Sheet-iron, Nails, Casks, or Crates of Crockery, Hardware, and other heavy articles not enumerated below.
4th class.—Flour, Bacon, (in casks or boxes) Pork, Beef, Lard, Tallow, Butter, Beeswax, Bales of Rags, Ginseng, Green and Dried Fruit, (in casks or sacks) Pig-iron and Linseed Oil, per 100 lbs.
Cotton. Per 100 lbs.

Merchandize shipped from any of the northern ports, must be consigned to R. R. AGENT, CHARLESTON, S. C., or R. R. AGENT, SAVANNAH, GA.: and every package must be marked, care of B. CHANDLER, Chattanooga.

Charges will accompany the goods, and be collected by the boats on the Tennessee river, when delivered to the owner or consignee

No preference in the way of despatch, will be given to any produce intended for their line, but each lot will be sent off as it is received.

The warehouse of the undersigned will be enlarged during the summer, and an apparatus attached for hoisting or lowering freight to the river, without soil or injury.

He will have a train of wagons under his entire control, sufficient to conduct the fall business with great despatch.

B. CHANDLER.
Chattanooga, Tenn., July 1, 1847.

REGULAR RATES BETWEEN ATLANTA AND CHARLESTON OR SAVANNAH.

First class, per foot	$0 20
Second class, per 100 lbs	1 20
Cotton, per 100 lbs	0 55
Third class, per 100 lbs	0 60
Fourth class, per 100 lbs	0 50

BOUND VOLUMES.

Volumes of this Journal, for the Years 1838 *to* 1846, *INCLUSIVE, may be had Bound, at Subscription Price, on application at this Office.*

☞ *One or two* COMPLETE SETS *of the* RAILROAD JOURNAL *may be had in a few weeks—or as soon as two numbers can be reprinted—by application to the Editor.*

AMERICAN RAILROAD JOURNAL.

OFFICE AT THE FRANKLIN HOUSE,
105 Chestnut Street,
PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

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